

# PROGRESS OF MEDICAL SCIENCE

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## MEDICINE

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UNDER THE CHARGE OF

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**Studies on the So-called Transitional Cells.**—EVANS (*Arch. Int. Med.*, 1916, xviii, 692) in the present study has made the attempt to clear up some of the uncertainty which exists in regard to the large mononuclear white blood cells, concerning the various types of which, their origin and significance a great deal of confusion exists. In this group the so-called transitional cells stand out from all the rest by reason of their content in granules of an oxydase ferment, as can readily be demonstrated, by the application of the indophenol-blue reaction. Taking advantage of this fact the author has attempted by means of experimental methods, to determine *first* which of the mononuclear wandering cells of the tissues, if any, are lymphoid and which histogenous; *second*, which of the large mononuclear cells of the blood fall into the same groups; *third*, whether the transitional cells of the peripheral blood can be identified with any other mononuclear cells of the blood or tissues; and *finally*, whether all the mononuclear wandering cells of the body exclusive of the small lymphocytes, are of histogenous origin. He has attempted to solve these points by a number of methods including intravenous vital staining, and intraperitoneal vital staining, using various types of dyes. As a result of his studies Evans gives the following grouping of the mononuclear cells: (1) Cells containing an oxydase ferment and not taking the vital stains. (2) Cells containing no oxydase ferment but specifically stained *intra vitam*. These cells are the normal constituents of the tissues and are of rare and accidental occurrence in the peripheral blood. (3) Cells containing no oxydase ferment and not taking the vital stain, namely the lymphoid elements in which are included the true lymphocytes and probably most of the non-oxydase large mononuclears of the blood. These observations

would seem to refute the theory of Mallory which assumes that all the adult mononuclears of the blood are of endothelial or histogenous origin and supports the view of Aschoff that there is a distinct histogenous and lymphoid group of cells totally distinct from each other. With specific reference to the transitional cells Evans points out that they constantly present the following features: (1) They possess an oxydase ferment readily demonstrable. (2) They are not specifically stained *intra vitam*. (3) They take up carmin particles from an unfiltered solution. (4) These cells may be found in the spleen and other blood-forming organs, but are not more abundant in the splenic vein blood than elsewhere and are never seen in the omentum, serous fluid or tissues when any polymorphonuclear cells are present. (5) And finally, the evidence is in favor of the view in accordance with that supported by Naegeli, that these cells belong to the granulocyte series and, together with the other granular polynuclear cells, should be regarded as descendants of the myeloblasts of the bone marrow and splenic pulp.

**Autogenous Defibrinated Blood in the Treatment of Bronchial Asthma.**—KAHN AND EMSHEIMER (*Arch. Int. Med.*, 1916, xviii, 445) have devised a rather interesting method for the treatment of bronchial asthma consisting of the subcutaneous injection of autogenous defibrinated blood. This blood is withdrawn whenever possible, during an asthmatic attack. The theory upon which they base this mode of treatment may be stated in the following way: asthma is presumably due to a spasm of the smaller bronchi and this spasm in turn is probably the manifestation of an anaphylactic condition. It is presumed that the anaphylactic phenomenon represented by an attack of bronchial asthma is to be explained upon the basis of protein sensitization, though whether the protein gains access to the body by the nasopharynx, gastro-intestinal, or respiratory system is not certain. In any event, it is probably absorbed into the blood, and if so, it should be found there most probably just prior to or during an acute asthmatic attack. If these assumptions are true, then it is quite conceivable that immunization by the repeated parenteral injections of autogenous defibrinated blood should be beneficial to the patient. Applying this theory, the patients have secured, in six successive cases, of bronchial asthma, very favorable results as shown by definite improvement generally and a decrease in the frequency and severity of the bronchial asthma attacks. The patients have been able to do more work and have gained in eight. The procedure is simply the withdrawal of about 20 to 30 c.c. of blood into a sterile flask which contains a number of glass beads. By agitation the blood is defibrinated and it is then immediately injected subcutaneously into the loin of the patient. Aside from a little local discomfort, there have been no untoward effects following the injections.

**The Relation of the Pituitary Body to Renal Function.**—A great deal of work has been done recently in an attempt to demonstrate a relationship between the pituitary body and the kidneys, especially with regard to the etiology and pathology of diabetes insipidus. In the present article MOTZVELDT (*Jour. Exp. Med.*, 1917, xxv, 153) brings forward further evidence to support a conclusion previously advanced by him to the effect that the pituitary body exerts its essential action

upon the kidneys in the way of *checking* the flow of urine or in other words, the function of the pituitary body with relation to the kidney is one of an anti-diuretic effect, this action being most marked when diuresis is high. In support of this contention the author has previously shown the beneficial effects which have persisted over a period of two years in a case of diabetes insipidus treated with the posterior lobe of the pituitary body. In the present work a more or less constant artificial polyuria was worked out in rabbits by introducing into their stomachs between 150 to 200 c.c. of water. Curves of excretion were thereafter charted out for various rabbits treated with pituitary extracts of a number of different preparations. In addition to noting the effect of pituitary extract, the effects of other drugs such as chloral, strychnia, morphin, caffein, adrenalin, thyroid and thymus glands were noted all under different conditions of administration and both with and without the intermediate action of the nerve supply to the kidneys. As a result of the study the author again comes to the conclusion that extracts of the posterior lobe of the hypophysis, whether given by mouth, subcutaneously or intravenously, are able to check an induced polyuria. This anti-diuretic effect is apparently independent of the changes in the blood-pressure, intestinal absorption or the action of the vagus nerves. One very interesting feature and of practical therapeutic importance was the beautiful demonstration of the fact that the anti-diuretic action of the pituitary is absent or only slightly present, in checking the so-called salt diuresis produced, in this instance, by the ingestion of 40 c.c. of a 10 per cent. solution of sodium chloride. This fact is a further demonstration of the essential difference between water diuresis and salt diuresis and shows the importance of a salt-poor diet in the rational treatment of diabetes insipidus.

**Renal Function in Pernicious Anemia.**—It has been previously pointed out that patients with severe anemias may give results to a renal test diet which are similar in every detail to those found in advanced cases of contracted kidney. The point first emphasized by Mosenthal has been further studied by CHRISTIAN (*Arch. Int. Med.* 1916, xviii, 430) in a series of cases of pernicious anemia. The data secured from this study indicates without doubt that in severe anemia renal function as measured by diet tests, is disturbed in much the same way as in cases of advanced chronic interstitial nephritis. This is apparently true no matter whether the anemia is in a young or old person. It would seem most likely that the disturbance of renal function is a direct result of the anemia and is the expression either of a nutritional or of a toxic disturbance in the activity of the renal cells. Evidences in favor of this view are shown by the improvement in renal function which takes place parallel with an improvement in the anemia itself. In view of the fact therefore that an advanced nephritic picture may be entirely simulated by cases of severe anemia, it is absolutely necessary to consider the element of anemia whenever one attempts to draw conclusions from renal test diets applied to patients with nephritis. Christian points out however, the fact that this point, though of great importance, is not going to prove a very complicating factor, since, despite their pallor, the degree of anemia in patients with advanced nephritis is very often slight.